REVIEW OF FISCAL IMPACT STUDIES
RELEVANT TO THE HIGHLANDS REGION OF MASSACHUSETTS

EXECUTIVE SUMMARY

Over the summer of 2001, American Farmland Trust (AFT) conducted a literature review for the Highland Communities Initiative of the fiscal impacts of land uses and/or land conservation. The review focused on small towns or rural communities with an actively managed working landscape that were similar to the towns in the Highlands region—either by geographic proximity, government structure or demographics.

The literature search included research on studies done in the past 10 years that focus on communities with strong home rule government and land actively managed in agriculture or forestry uses. AFT summarized methodologies that represented different types of fiscal analysis and could be applied in the Highlands, and outlined a case study for each methodology. AFT included a bibliography and contact list to assist in future research.

The search yielded a wide variety of results, including fiscal impact analyses, Cost of Community Services (COCS) studies, cost of open space analyses, and other reports that did not fit into an existing category. Based on this literature search, three general methodologies were chosen for in-depth review: 1) fiscal impact analyses 2) COCS studies and 3) tax base studies by Ad Hoc Associates. They all have similar findings: residential development requires substantially more public services and typically costs municipalities more than other types of land uses including farmland and open space.

Fiscal impact studies measure the potential impacts of development, and vary widely in scope. Although some are quite complex and analyze secondary economic impacts as well as the fiscal impacts of growth, they do not analyze the contributions of privately owned working lands or measure what actually is occurring in a community. They also may or may not account for current service capacity and whether new growth will maximize or exceed it.

COCS studies compare the average fiscal costs of a community's major land uses in a real place and real time. They are straightforward, relatively inexpensive and useful for assessing the financial balance of current community land uses. They are helpful for analyzing the financial implications of differential tax assessment policies that tax working lands at their current use

rather than their "highest and best" use, typically for development. But they are not predictive nor do they examine the secondary economic impacts of growth.

Ad Hoc Associates' studies analyze the relationship between land conservation, development and property taxes in New York, Maine, Vermont, Massachusetts and Connecticut. They investigate both short-term and long-term impacts of different types of land uses on the overall tax base as well as on the actual tax bills paid by town residents. They are a useful tool to measure the relationship of property tax rates to socioeconomic and land use indicators.

Ad Hoc's studies bear out the widely held assumption that, in the short run, development increases the tax base by adding property value, whereas land protection does not provide additional tax revenue and may reduce the tax base. However, in the long term, they find that open land requires a much lower level of services than developed land, limiting increases to municipal budgets and associated spending over time. Thus, they show that tax rates correlate with the type and degree of development in a town, and that more developed towns typically have higher tax rates. These findings support the findings of COCS studies, which show that farm, ranch and forest lands are important commercial land uses that help balance community budgets. Working lands are not just vacant land waiting around for development.

Each of these types of studies has its own merits and must be evaluated in terms of the needs and budgets of a given community. All of the methodologies contribute to comprehensive planning efforts, and all show the costs of growth and development. However, fiscal impact analyses while being the most sophisticated type of analysis, rarely, if ever, address open space issues – especially privately owned agricultural and forest land. Therefore, factors to consider in choosing a methodology include whether measuring current conditions is sufficient, as in COCS, or whether there is a need for historic perspective, as in the Ad Hoc studies, or a predictive model, as in traditional fiscal impact analysis. Other factors include who the intended audience is and what type of information they will find credible and relevant, how quickly information is needed, and the cost of a study, which varies from about $15,000 for a COCS study to as much as $150,000 for a fiscal impact analysis.

INTRODUCTION

A literature review of fiscal studies relevant to the Highlands region of Massachusetts was prepared for The Trustees of Reservations and summarized in this report. The review included research on studies done in the past 10 years that focus on the fiscal impact of land uses and/or land conservation in communities similar to the towns in the Highlands region—either by geographic proximity, government structure, or demographics. Methodologies representing different types of fiscal analysis that could be adapted and applied in the Highlands were summarized, and a case study was outlined for each methodology. A bibliography and contact list were prepared for future investigation.

Research for this project began with literature on file at American Farmland Trust (AFT), including Cost of Community Services (COCS) studies, tax base studies done by Deb Brighton of Ad Hoc Associates, fiscal impact studies, reports on the economic value of open space, and general literature on the fiscal impacts of land use. In addition, AFT staff identified individuals who had or knew of potentially relevant fiscal impact studies. The bibliography identifies the source and/or contact agency for each study discussed in this report, and Appendix I includes more detailed information on sources contacted and the results.

The University of Massachusetts (Umass) Amherst library was searched. However, the majority of fiscal impact studies at UMass are from the 1970s, with only a few recent treatments of the subject, including comprehensive works by Robert Burchell, one of the leading experts in fiscal impact analysis. The UMass Department of Landscape Architecture & Regional Planning and Department of Resource Economics were contacted, as well as the Department of Resource Economics at Antioch New England. The Regional Planning Commissions (RPCs) in western Massachusetts were called: the Pioneer Valley Planning Commission, Franklin Regional Council of Governments, and the Berkshire RPC. The Vermont League of Cities and Towns and the Upper Valley/Lake Sunapee RPC in Lebanon, New Hampshire also were called.

A web search and telephone survey were conducted and included a variety of state and national nonprofit conservation organizations, as well as planning-related organizations (see Appendix I). A general web search was done using Google.com. Lists of studies done by private consulting firms, including RKG Associates and Tischler & Associates, were one result of this web search. The Massachusetts Department of Revenue offers consulting services on fiscal analysis in its Division of Local Services. Web sites for two municipal associations were researched: International City/County Management Association (ICMA) and Massachusetts Municipal Association (MMA). AFT contacted the Westfield office of the Massachusetts Department of

Environmental Management (DEM), several local land trusts and the Land Trust Alliance. Bibliographies of reports and articles obtained by these means led to other sources, as well.

This survey yielded a wide variety of results, including fiscal impact analyses, COCS studies, cost of sprawl studies, cost of open space analyses, and other reports that did not fit into an existing category. With the notable exceptions of COCS and Ad Hoc Associates' studies, little consistency was found among methodologies. Reports with some relevance to the Highlands region were obtained when found. However, very few studies were found that had been done in communities similar to the Highlands region by geographic proximity, economic profile, government structure or demographics.

Based on this literature search, three general methodologies were chosen for in-depth review:

1. Fiscal impact analyses,
2. COCS studies, and
3. Tax base studies by Ad Hoc Associates.

FISCAL IMPACT STUDIES

Fiscal impact studies tend to fall into two approaches: Theoretical analyses of alternative and/or cumulative development scenarios and in a few cases, site-specific analyses of the impact of preservation or development of a particular parcel of land. In the first approach, evaluation of cumulative impacts of all expected development within a jurisdiction over time is often referred to as a "build-out" scenario. Of the reports gathered, most fell into the first category. Within this category, methodologies vary, and a list of typical methodologies is provided in the glossary. The most common is the "per capita" method, which determines the costs of development by averaging the total cost of required services by the number of people using them, sometimes with a multiplier to assess more distant effects. Another popular method is the "econometric" model, which projects impacts year by year, usually for very large projects.

Very few fiscal impact studies for small towns in rural areas of New England were found. Most fiscal impact studies are performed for wealthy suburban areas or fast-developing towns, as cost of these studies is prohibitively high for small and rural communities.

General Literature Reviews

In the process of searching for fiscal impact analyses, a significant amount of general information on the fiscal impact literature was gathered. These reports and articles included guides to fiscal impact analysis (for community members and planners), fiscal impact models, and in-depth literature reviews. They summarize the major methodologies and discuss the relationship of fiscal impact analysis to other kinds of economic impact studies, including cost-benefit analysis. Some of them trace the history of the field and its methodologies and discuss the range of findings that have occurred. These reports are included in the bibliography; however, since none of them are relevant to the Highlands region, they are not explored in this review.

Theoretical Analyses

One of the most common approaches among these reports is to examine the cost of sprawl versus the cost of compact development. These studies generally are based on an analysis of two potential development scenarios, usually focused on residential uses but sometimes including commercial and industrial uses. The first scenario assesses the fiscal impact of current growth trends (sprawl), while the other measures the impact of a more compact arrangement of the same number of units or uses. These studies found that compact development was significantly less expensive than sprawl for the affected municipalities, particularly for infrastructure (roads, water and sewer). In the long term, ongoing operating costs for roads and infrastructure also would be reduced with compact development, and there would be less need to acquire land for public parks and recreation (Burchell and Listokin, 1995). The annual savings to municipalities was found to be in the 2-3 percent range in several studies (Southeast Michigan Council of Governments, 1996; Burchell and Listokin [3 examples], 1995).

Another possible scenario found was to compare varying types of residential development, such as different types of housing (Planner's Collaborative) or variable growth rates, from faster to slower (RKG Associates, 1998). One study ran through the fiscal impacts of a single three-bedroom home, using the per capita multiplier approach, and showed the net impact to be a significant cost to the municipality (Turner, 1990).

Site-Specific Studies

Since the focus of this search was on studies that addressed rural communities and land, about half of the studies AFT gathered in this category analyze the cost of developing versus preserving a given parcel (ranging from 300-900 acres in each case). The studies compare the revenues and costs generated by housing versus the revenues and costs generated by the undeveloped parcel. The findings show a net loss from residential development of the land (Alexander, 1999; Maine

Coast Heritage Trust, 1991; Mayors and Members of the Township Committee, 1994; New Jersey Land Forum, 1995). Other examples assess the impact of a particular development, such as an office complex or residential subdivision (Hamilton, 1992; Upper Valley Lake Sunapee Council, 1990, 1992; Dotzour, no date). However, Terry Holzheimer, AICP, cautions that "…without development of a community-wide model, project related impact analyses are difficult and generally inaccurate" (1998, p.3). Since project-level analyses often do not account for the effects of the new development on current service capacities, the community-wide impacts are harder to predict.

Case Study—*Land Conservation in Sheffield and Egremont: Does it Make Cents?*

Published in 1998 by The Nature Conservancy, the Sheffield Land Trust, and the Egremont Land Trust, this study is not a standard fiscal impact study. However, it is the only study found that is truly relevant to the Highland area, and it does provide a fiscal analysis of recent trends as well as a general build-out scenario.

Purpose and Findings

The purpose of the "Does it Make Cents" study was to explore the fiscal and quality-of -life impacts of land conservation and development in the Berkshire towns of Sheffield and Egremont, Massachusetts. The study found that:

1) Existing conservation land contributes significantly to tax revenues;
2) If development continues in a manner similar to recent trends, it will result in increased taxes (as well as loss of quality of life); and
3) If development and conservation both continue at their present rates, all non-conserved developable land in both communities will be used in about 20 years.

Fiscal Impact of Open Space

The amount of land in conservation, held by both public agencies and private non-profit organizations, more than tripled in Sheffield and Egremont over the 15 years prior to the study. This land has required no new town services and, in this case, actually contributes to the tax base rather than resulting in a net loss. The total 1998 tax contributions of conservation lands as described below were $18,522 in Egremont and $49,397 in Sheffield:

- Some conservation organizations, including the Sheffield Land Trust and The Nature Conservancy, voluntarily pay property taxes on some conservation lands;

- Nearly a thousand acres of land in the two towns are held under conservation restriction, and landowners pay property taxes on these parcels;
- Land held under the Agricultural Preservation Restrictions (APR) program is also subject to taxes; and
- The state and to a limited extent the federal government make "in lieu of tax" payments to each town, even though conserved land owned by the government is tax exempt.

The issue of the effects of "in lieu of tax" payments on state aid was not addressed. Chapter 61 lands also are not included in the analysis because they are not permanently protected. However, these properties also contribute revenue to the towns.

Home Ownership Trends and Fiscal Impacts on the School District

The "Does it Make Cents" study examined development trends and the relationship to tax increases in the two towns over the previous five to 10 years. In both towns, the number of new homes (some secondary but mostly primary residences) has increased significantly over the past five years. As long as they remain seasonal or occasional uses, second homes do not contribute to the need for school services, yet they contribute property tax revenue. However, second homes increasingly are becoming primary homes. By 1998, 40 percent of the secondary homes sold in Sheffield since 1995 and 36 percent of the secondary homes in Egremont since 1996 had become primary homes (p.10). Nearly half of the second home properties in the two towns are valued in the same range as most primary homes, making them equally affordable to town residents and equally desirable as primary homes to the current owners.

As the number of primary homes increased, the number of school children grew, resulting in higher school costs, particularly in Sheffield. The significant increase in school population in that town contributed to the Berkshire Regional School District's decision to build a new regional high school and refurbish other schools at a cost of $25 million in 1993. The increase in school children is attributed to the influx of new residents, because the local birth rate and ratio of children to adults have remained fairly stable. For reasons not addressed in the report, the number of school children in Egremont declined; however, school costs rose because the town must bear some of the costs of the entire district. The contribution of state aid was not addressed.

Based on an analysis of town budgets and assessors' records, these increasing school costs played a primary role in recent tax increases in Sheffield and Egremont. In Sheffield, school costs increased 45 percent between 1991 and 1998, necessitating a 43 percent increase in overall property taxes. For Egremont, the increase in school costs was 20 percent and taxes 17 percent. Figures 7 and 8, on page 12 of the study, show a parallel between the year-to-year changes in both

factors. Meanwhile, increases in other town expenses were minor. Operating budgets changed little, while other expenses, such as one-time capital costs, fluctuated. The amount of taxes foregone by having land in conservation was found to be insignificant compared to the increased school costs and did not parallel the increases in property taxes.

Build-Out Scenario

The study included a Geographic Information Systems (GIS) projection of future land use based on current data, to determine at what point the area would achieve "build-out" if current rates of development and conservation were to continue. The estimate was based on a 20 year period. In 20 years, it was found that there would be 600 new homes and 210 new school-aged children in the two towns. The current school buildings most likely could accommodate this increase in enrollment, but operating costs would increase. These numbers assume that the rate of land conservation continues at its current pace, resulting in 5,500 new acres of protected open space. However, this is uncertain, as public land acquisition in the two towns has leveled off.

COST OF COMMUNITY SERVICES STUDIES (COCS)

COCS studies are a straightforward way to assess the fiscal impacts of different land uses at a given point in time. They show a community's costs versus revenues based on current land use. Unlike traditional fiscal impact analysis, they are not predictive, but are based on case studies of real places in real time.

In the COCS methodology, local budgetary information is allocated to land use categories, which are usually: (1) residential development, (2) commercial/industrial development, and (3) farm/forest land and open space. The studies rely on financial data and in-depth interviews with town officials to understand how revenues were generated and how appropriations were spent for a recent year.

COCS studies were inspired by a 1986 American Farmland Trust (AFT) report, *Density Related Public Costs*, which compared the costs of serving hypothetical low-density developments to the costs of higher-density developments. The Piedmont Environmental Council followed *Density Related Public Costs* with a study of the fiscal impacts of land use in Clarke County, Virginia. They used the same three basic land use categories: residential, commercial/industrial, and farm/forest/open space. AFT adapted this convention for subsequent studies of Hebron, Conn. (1986), and Dutchess County, N.Y. (1989), and upon peer review, refined the method for three studies of the Pioneer Valley in Massachusetts (1992).

Since then, AFT and other organizations throughout the country have conducted at least 83 COCS studies (see Appendix III). Based on this research, the median costs to provide public services—per dollar of revenue raised—are $.27 for commercial and industrial uses, $.36 for farmland and forest uses, and $1.15 for residential uses. The COCS findings are a useful tool to understand current conditions, although they do not provide data about long-term costs associated with different land uses.

Case Study: Cost of Community Services in Gill, Massachusetts

Gill is a small town situated in the north-central section of Franklin County, fairly close to the Vermont border. Its 8,858 acres of floodplains and rolling uplands are bounded on three sides by the Connecticut and Fall Rivers. Sheltered from major employment centers, it is a quiet, rural community with a population of 1,583 in 1990.

According to a 1989 "Open Space and Recreation Survey," 95 percent of its residents own their own homes, and 50 percent have lived in Gill for more than 15 years. Forty-five percent of them own more than five acres of land. Town services are limited. Farming—once a primary industry in town—has declined significantly. From 1972-1985, a 44 percent reduction in land committed to agriculture resulted in a loss of over 1,250 acres of farmland.

Methodology

The objective of the study was to compare the amount of money generated by each land use sector to the costs of serving it. This was done by allocating all revenues and expenditures from a single year to each one of the major land uses in a town. Financial information was obtained through interviews, record searches and primary data collection. It was organized and analyzed according to land use. Although the concept is straightforward, ensuring accurate figures requires the contribution and cooperation of town officials and departments. In Gill, most of these people are volunteers, often holding more than one position in town in addition to full time jobs. Thus this was one of the more difficult and time-consuming steps.

Findings

Ratios were calculated by dividing expenditures by revenues for each land use category. Table 1 shows that every dollar of income raised by the residential sector required $1.09 in services. The commercial and industrial sector needed less than it raised, requiring only $0.42 in services. Farm/forest and open land was the most economical land use, costing only $0.37 for every dollar generated.

{PRIVATE }**Table 1: Budget Balance FY'89 by Land Use Category**				
	Residential	Commer/Ind	Farm/For/Open	Total
Revenues	$682,842	$159,202	$101,608	$943,653
Expenditures	745,121	64,688	37,428	847,236
Balance	(62,278)	94,515	64,181	96,417
RATIOS (in $)	**1: 1.09**	**1: .42**	**1: .37**	

Analysis

This study shows what each land use cost the Town of Gill relative to the amount of revenue it generated. The findings echo those of other COCS studies: it is more expensive to serve residential areas than it is to serve commercial and industrial uses, or farm/forest and open land. Non-residential land uses can be seen as subsidizing the high costs associated with serving the residential sector. This was true even though the analysis relied on very conservative assumptions, especially when officials could not provide their own estimations and default ratios were used.

The findings indicate that development options cannot be judged solely on their gross addition to the tax base. Communities must also consider their **net** economic impacts. Increasing the tax base is important, as long as the accompanying demand for services is not greater than the additional revenues. And while commercial and industrial lands made a positive contribution to the town budget, their unplanned growth can lead to more residential development and an even greater demand for services. By achieving a healthy balance of land uses, those requiring large amounts of public services can be supported by those requiring less.

The results of this study provide a fiscal argument for the protection of farmland and open space. The amount of revenue generated by farm/forest and open land was only 10.8 percent of the total revenue raised in Fiscal Year 1989. But compared to the amount of services required, it is clear that this sector makes a solid contribution to the town. In fact, even without the Commercial/Industrial sector, the $64,181 surplus generated by privately-owned open land more than offset the residential sector's deficit of $62,278.

This fiscal contribution is especially significant because farm and forest land in the Chapter 61 program is taxed at its current use value rather than its potential value for development. Communities often fear that current use programs strain budgets and are an "unfair" tax benefit for farm and forest land owners. The findings from this and other fiscal impact studies suggest the opposite—that the Chapter 61 program not only helps towns protect their natural resources, it also reduces the need for property tax increases.

AD HOC ASSOCIATES STUDIES

Ad Hoc Associates, a consulting firm in Salisbury, Vermont, has conducted case studies of the long-term fiscal impacts of various land uses on a community. Their findings turn out to be a nicely complement to COCS studies. Ad Hoc Associates' studies analyze the relationship between land conservation, development and property taxes in New York, Maine, Vermont, Massachusetts and Connecticut. They investigate both long and short-term impacts of different types of land uses on the overall tax base as well as on the actual tax bills paid by town residents.

These studies confirm the widely held assumption that, in the short run, development increases the tax base by adding property value, whereas land protection does not provide additional tax revenue and may reduce the tax base. However, in the long term, Ad Hoc's studies show that open land requires a much lower level of services than developed land, limiting increases to municipal budgets and associated spending over time:

> "In the long term, permanent land conservation projects limit the potential for swelling the town's tax base through development. However, limiting the development potential of a parcel also limits its potential to increase the town's costs to provide services. For this reason, permanent protection of land should not be looked at only as precluding a more lucrative option; it also is appropriate to look at it as protection against a more expensive option" (Ad Hoc Associates 1997, p.15).

Ad Hoc Associates also found that, in the long term, tax bills tend to be highest in towns with the most commercial and industrial activity. Three reasons are given for this:

1) <u>Commercial development and residential development tend to go together.</u>
Commercial and industrial activity usually creates jobs that attract new residents. Some new employees may settle in neighboring communities, but Ad Hoc's study in Connecticut found a strong correlation between the number of jobs and the number of residents in a given town.

Therefore, commercial and industrial development often results in higher municipal expenditures for residential services.

2) Commercial and industrial development does not appreciate as rapidly as open land or residential development. Assets associated with this type of development, such as buildings, do not appreciate at the same rate as residences or open land; in fact, they can depreciate. "A commercial development that originally represented 10 percent of the tax base may over time only represent 5 percent of the tax base – due only to differences in the rates of appreciation" (Ad Hoc Associates 1995, p.16).

3) In general, communities with larger tax bases offer more services. Once a certain point of development is reached in a town, new facilities may be required to continue the same level of services to residents. These facilities require additional expenditures that may not directly benefit residents. Ad Hoc's example is the need to replace a stop sign at a busy intersection with a traffic light. This type of improvement is a response to changing conditions due to growth, but provides little benefit to residents.

In addition to negative impacts of commercial and industrial development on property taxes, such development also may have unwanted secondary impacts on the community. For example, increased pollution, traffic, buildings and parking lots may diminish a community's visual character and decrease residents' quality of life. Although not measured in these studies, there are financial and economic costs to the community associated with these secondary impacts.

These findings complement COCS study findings and provide an important perspective on the long-term effects of growth and development. Over time, towns with more development and population tend to have higher costs. Therefore, plans to control growth may limit both municipal spending and future increases to tax bills.

Case Study—*Community Choices: Thinking Through Land Conservation, Development, and Property Taxes in Massachusetts*

Ad Hoc Associates conducted a study in Massachusetts that looked at both short-term and long-term effects of land conservation. The study found that residential property taxes were higher in more developed towns—towns that have more residents, more commercial and industrial property, and more jobs—than in rural communities. The tax rate also was higher in towns where incomes are higher. However, the towns with the highest tax rates are not the ones spending the

most per pupil on education: "…high property tax rates are not necessarily a result of decisions to offer above average educational opportunities" (p. 7).

Short-Term Effects of Land Conservation

To examine the short-term effect of conservation, the study calculates the tax increase caused by removing $500,000 of property value from the tax rolls in seven sample towns: Boxford, Carlisle, Dartmouth, Lee, Lowell, Mashpee, and Middleborough. It was found that land protection would most likely reduce the tax base and result in a tax increase. The amount of the increase would vary depending on the method of conservation used and the tax situation of the town. The study explains the steps involved in calculating the tax implications of several conservation options: transfer of the land to a nonprofit conservation organization, transfer to federal, state, or municipal ownership, or the establishment of an easement on the property. Depending on the size of the tax base and the municipal budget approved by the voters, the effect of this transfer varies from town to town (see Table 1, p.12 of the study). The cost to residents is greater in towns with small tax bases and in towns with higher property tax rates.

Long-Term Relationship Between Development and Property Taxes

To examine the long-term effect of land conservation versus new development, the study correlates the residential property tax rate in all Massachusetts towns with various measures of development. As an initial indicator, the towns were ranked according to population and divided into five groups, and the residential tax rate was then averaged for each group (see Figure 1, p.16). The residential tax rate was lowest in the group containing the fewest year-round residents (the most rural towns) and highest in the group containing the most year-round residents (the most developed towns.)

The towns were ranked by the number of jobs and by the value of commercial, industrial and personal property. Although commercial and industrial developments generally pay more in taxes than they cost the town in services, average tax rates were found to be higher in towns that have more commercial activity (see Figures 2 & 3, p. 16-17). The reasons for this have been outlined above in the general discussion of Ad Hoc Associates' studies. One additional reason specific to Massachusetts was that state aid is reduced when the local tax base increases, thus offsetting any gains to the municipality.

Long-Term Relationship Between Open Space and Property Taxes

Finally, the study assessed the relationship between municipal property taxes and open land in Massachusetts. As the first indicator, each town's residential tax rate was correlated with the open space acreage per capita. Towns were ranked according to population density and divided

into five groups, with 20 percent of the towns in each group. The tax bill on the median value house in each town was calculated and averaged for each of the five groups. On average, it was found that the tax bills are lowest in towns with the most land per capita, even though these towns tended to have the most land enrolled in Chapter 61 programs.

A second indicator measured the percentage of a town's tax base that is made up of open land. All towns were again ranked according to this measure and divided into three groups according to the value of the open land. The towns in which open land makes up a larger proportion of the tax base have lower tax rates, on average, than the more developed towns.

The analysis was taken a step further to look at the long-term effects of permanently protected open land. Again, towns were ranked, this time according to acres of permanently protected conservation land, and divided into five groups. Surprisingly, it was found that towns with the most permanently protected land actually had *lower* tax rates. In the long term, it was found that land conservation can hold down property taxes by limiting increases in municipal services.

OTHER STUDIES

Another relevant study was reviewed that did not fit into the above categories. A 1998 project in Westhampton, funded by the Massachusetts Department of Housing and Community Development, evaluated the town's capital needs, population trends, types of businesses, and zoning regulations. It offered a set of strategies to diversify the tax base and offset the financial impact of residential growth. Even though Westhampton has one of the highest tax rates in the area, more than 80 percent of its revenues were spent on school-related costs, leaving little for other expenses. The report recommends that the town pursue economic development through volunteer activities, including forming a business association to help implement some of the other proposed strategies. The report's concluded by emphasizing the proposed strategy of adopting a wireless communications by-law to encourage telecommunications companies to lease sites from the municipality (while also minimizing the scenic impact of these facilities).

In addition, a wide variety of studies examining the economic value of open space was uncovered. These studies address economic issues relating to conserved land, such as the effects of such land on adjacent property values; the financing of land acquisition; the economics of regulatory measures such as transfer of development rights and clustering; the economic benefits of tourism and outdoor recreation; the value of environmental conservation (i.e. air and water quality, biological diversity, and floodplain management); the fiscal impact of open space versus development; and quality of life issues. These studies were not included in this report because

they were not fiscal impact studies but rather in-depth discussions of these diverse issues. In some cases, fiscal impact studies were cited or summarized, and these references were pursued where relevant, but fiscal impact analysis is only one component of the economics of open space.

CONCLUSION

The methodologies reviewed in this report vary from the current snapshot approach of COCS studies to the long-term predictions of fiscal impact analyses. Yet they all show similar results: Residential development requires more services and costs municipalities more than other types of land uses. Ad Hoc's studies find that in the long run, open land requires a much lower level of services than developed land, limiting increases to municipal budgets and associated spending over time. These findings support the findings of COCS studies, which show that farm, forest and open lands help balance community budgets. In rural and even suburban communities, working lands are important commercial uses, not just vacant land waiting around for development.

COCS studies measure the relative aggregate costs of major land uses in a real place and real time. They are straightforward and relatively inexpensive and useful for assessing the fiscal balance of current community land uses. And they are helpful for analyzing the financial implications of tax assessment policies such as Massachusetts' Chapter 61 – or "current use" tax program. While based on careful research, they may be most valuable as an educational and awareness tool.

Ad Hoc Associates' tax base studies also are a useful measuring tool that give a sense of the relationship of property tax rates to socioeconomic and land use indicators. They show that tax rates correlate with the type and degree of development in a town, and that the more developed towns have higher tax rates. These results complement COCS study findings that residential uses require more services, but also show a long-term fiscal downside to commercial and industrial development, which is not seen in COCS studies because they do not analyze historic tax patterns.

Fiscal impact studies measure potential impacts of development, but vary widely in scope. Many do not look at the secondary impacts of a given scenario, including the residential growth that typically follows commercial and industrial development. They also may or may not account for existing service capacity and whether new growth will maximize or exceed current capacity.

The Ad Hoc Associates studies address the issue of secondary impacts, but do not provide a means of measuring them. Fiscal impact studies can provide a way to measure some of the

relative costs of different development scenarios, and show that compact development is less costly than sprawl. However, because they are predictive, and the literature search did not identify any retrospective evaluations of the approach, it is hard to know whether the costs and benefits they anticipate actually pan out over time.

Each of these types of studies has its own merits and must be evaluated in terms of the needs of a given municipality. All of the methodologies can be useful in raising awareness and planning for the future, particularly if they are undertaken before an actual development is under consideration. They all can provide arguments for the fiscal benefits of open space conservation, although fiscal impact analyses rarely, if ever, address open space issues – especially privately owned farm and forest land. Therefore, factors to consider in choosing a methodology include whether a current snapshot is sufficient, as in COCS, or whether there is a need for historic perspective or a predictive model. Other factors include who the intended audience is and what level of fiscal complexity will be relevant to them, how quickly information is needed, and the cost of a study, which varies widely between the methods.

GLOSSARY OF FISCAL IMPACT METHODOLOGIES

Per capita method, or "average-costing" The per capita method is applied on a jurisdiction-by-jurisdiction basis for all of an area's major service providers, including municipalities, school districts, and county government. It determines current public service costs on a per unit basis—per pupil for the school district and per capita/per employee for the municipality.

Per capita multiplier method After using the per capita method, growth-induced public service costs are determined by multiplying the per capita cost by the total number of people, employees, and pupils introduced by development.

These two techniques are straightforward, relatively easily accomplished, and usually allow a quick understanding of the impacts of development. They are the most common techniques employed, but may also be the least accurate. They do not account for the capacity of existing municipal services, which new development may maximize (decreasing per capita costs) or exceed (increasing per capita costs).

Adjusted per capita method, or marginal costing This is a variation on the per capita method where the figures are adjusted based on the subjective judgment of the analyst or local officials, possibly along with some local economic indicators, to reflect specific changes expected from the new development, such as new facilities that will be needed or changes in state aid. It relies on careful analysis of existing supply of and demand for services.

Disaggregated per capita method This method takes apart the local budget by estimating the costs and revenues separately for each of the municipality's major land use sectors. However, it is difficult to determine exactly how much is attributable to each sector for all revenue and expenditure types.

Dynamic, or econometric, method This is the most sophisticated of the methods, accounting for changes over time in a municipality's economic, land-use, and demographic profile, and therefore in its service levels and per capita costs and revenues. It applies statistical techniques to time-series data and requires more expertise to carry out than the other methods. It projects the impact of a particular project on a year-by-year basis and is particularly useful for large-scale projects which will be implemented in phases.

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